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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/041,957	01/07/2002	Steven Teig	SPLX.P0044	5414
23349	7590	10/03/2003	EXAMINER	
STATTLER JOHANSEN & ADELI			TAT, BINH C	
P O BOX 51860			ART UNIT	
PALO ALTO, CA 94303			PAPER NUMBER	

2825

DATE MAILED: 10/03/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/041,957

Applicant(s)

TEIG ET AL.

Examiner

Binh C. Tat

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 01/07/02.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 27-45 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 27-45 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 07 January 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_. 6) ☐ Other: \_\_\_\_\_

DETAILED ACTION

1. This office action is in response to application 10/041957 filed on 02/07/02.

Claims 27-45 remain pending in the application.

*Claim Rejections - 35 USC § 102*

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

✓> 27-45

2. Claims ~~1-28~~ are rejected under 35 U.S.C. 102(e) as being anticipated by Sarrafzadeh et al. (US Patent 6442743).

3. As to claims 27, Sarrafzadeh et al. a method of pre-computing routes for nets in a region of an integrated circuit ("IC") layout, the method comprising: a) defining a set of partitioning lines for partitioning the region into a plurality of sub-regions during a routing operation (see fig 1-18 and description and partitioning using GBFM fig 5, 8, 11-18); b) for a set of potential sub-regions, identifying a set of routes that traverse the potential set of sub-regions, wherein at least one of the routes has at least one diagonal edge (as Sarrafzadeh et al. teach performing clustering to create top-clusters; it is noted that the clustering is done by gathering cells or nodes into clusters that are closely related and then placed the clusters or assigned into bins or sub-regions, further placement refinement is done by further partitioning the bins into smaller bins where few cells that are closely related being assigned or placed, then the routing is performed as shown in

fig 13-16 and fig 18) storing the identified routes (as Sarrafzadeh et al. teach performing clustering to create top-clusters; it is noted that the clustering is done by gathering cells or nodes into clusters that are closely related and then placed the clusters or assigned into bins or sub-regions, further placement refinement is done by further partitioning the bins into smaller bins where few cells that are closely related being assigned or placed, then the routing is performed as shown in fig 16; the routes are then stored).

4. As to claim 28 Sarrafzadeh et al. teach wherein a plurality of paths exist between the sub-regions defined by the set of partitioning lines, wherein a plurality of the paths are diagonal paths, wherein at least one of the routes traverses some of the diagonal paths (as Sarrafzadeh et al. teach performing clustering to create top-clusters; it is noted that the clustering is done by gathering cells or nodes into clusters that are closely related and then placed the clusters or assigned into bins or sub-regions, further placement refinement is done by further partitioning the bins into smaller bins where few cells that are closely related being assigned or placed, then the routing is performed as shown in fig 13-16 and fig 18).

5. As to claims 29 Sarrafzadeh et al. teach wherein identifying the routes comprises identifying the paths between the sub-regions used by each route (see fig 13-16 and fig 18).

6. As to claim 30, Sarrafzadeh et al. teach wherein a plurality of the paths are Manhattan paths, wherein at least one of the routes traverses some of the Manhattan paths (see fig 13-16 and fig 18).

7. As to claim 31-33 Sarrafzadeh et al. wherein a plurality of edges exist between the sub-regions defined by the set of partitioning lines, wherein a plurality of the edges between the sub-

regions are diagonal edges, wherein at least one of the routes intersects at least one of the diagonal edges (as Sarrafzadeh et al. teach performing clustering to create top-clusters; it is noted that the clustering is done by gathering cells or nodes into clusters that are closely related and then placed the clusters or assigned into bins or sub-regions, further placement refinement is done by further partitioning the bins into smaller bins where few cells that are closely related being assigned or placed, then the routing is performed as shown in fig 13-16 and fig 18) .

8. As to claim 34-36 Sarrafzadeh et al. further comprising: a) for each particular set of potential sub-regions from a group of potential-sub-region sets, identifying a set of routes that traverse the particular set of potential sub-regions, wherein some of the routes have diagonal edges (as Sarrafzadeh et al. teach performing clustering to create top-clusters; it is noted that the clustering is done by gathering cells or nodes into clusters that are closely related and then placed the clusters or assigned into bins or sub-regions, further placement refinement is done by further partitioning the bins into smaller bins where few cells that are closely related being assigned or placed, then the routing is performed as shown in fig 13-16 and fig 18); and b) storing the identified routes (as Sarrafzadeh et al. teach performing clustering to create top-clusters; it is noted that the clustering is done by gathering cells or nodes into clusters that are closely related and then placed the clusters or assigned into bins or sub-regions, further placement refinement is done by further partitioning the bins into smaller bins where few cells that are closely related being assigned or placed, then the routing is performed as shown in fig 16; the routes are then stored).

9. As to claim 37 and 42 Sarrafzadeh et al. teach for a roister that uses a set of partitioning lines to partition an integrated circuit ("IC") layout region into a plurality of sub-regions, wherein

a plurality of routing paths exist between the sub-regions, a method of pre-computing routes for connecting said sub-regions, the method comprising: for each particular combination of two or more sub-regions, identifying at least one route for connecting the particular combination of said sub-regions (see fig 1-18 and description and partitioning using GBFM fig 5, 8, 11-18); identifying the routing paths used by each identified route, wherein some of the identified routing paths are diagonal (as Sarrafzadeh et al. teach performing clustering to create top-clusters; it is noted that the clustering is done by gathering cells or nodes into clusters that are closely related and then placed the clusters or assigned into bins or sub-regions, further placement refinement is done by further partitioning the bins into smaller bins where few cells that are closely related being assigned or placed, then the routing is performed as shown in fig 13-16 and fig 18); and storing the identified routing paths for each identified routes in a storage structure (as Sarrafzadeh et al. teach performing clustering to create top-clusters; it is noted that the clustering is done by gathering cells or nodes into clusters that are closely related and then placed the clusters or assigned into bins or sub-regions, further placement refinement is done by further partitioning the bins into smaller bins where few cells that are closely related being assigned or placed, then the routing is performed as shown in fig 16; the routes are then stored).

**10.** As to claim 38 , 41 and 43 Sarrafzadeh et al. teach wherein some of the routing paths are horizontal (see fig 13-16 and fig 18).

**11.** As to claim 39 and 44 Sarrafzadeh et al. teach wherein some of the routing paths are Manhattan (see fig 13-16 and fig 18).

**12.** As to claim 40 and 45 Sarrafzadeh et al. teach wherein the Manhattan routing paths are defined with respect to a first grid, and wherein the diagonal routing paths are defined with

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respect to a second grid (as Sarrafzadeh et al. teach performing clustering to create top-clusters; it is noted that the clustering is done by gathering cells or nodes into clusters that are closely related and then placed the clusters or assigned into bins or sub-regions, further placement refinement is done by further partitioning the bins into smaller bins where few cells that are closely related being assigned or placed, then the routing is performed as shown in fig 13-16 and fig 18).

*Conclusion*

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Binh C. Tat whose telephone number is (703) 305-4855. The examiner can normally be reached on 7:30 - 4:00 (M-F).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mathew Smith can be reached on (703) 308-1323. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 305-3431 for regular communications and (703) 305-3431 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-1782.

Binh Tat  
Art Unit 2825  
September 20, 2003

  
VUTHE SIEK  
PRIMARY EXAMINER